

1. What is a brief definition of economics? What are the conditions that give rise to this definition?

Ans: It is the social science concerned with the efficient use of scarce resources to achieve the maximum satisfaction of economic wants. Economic wants are many and diverse. People seek many goods and services to satisfy their wants. Society uses productive resources to produce goods and services that meet these wants. Unfortunately, the economic wants of society exceeds the productive capacity of the economy to produce the goods and services to satisfy those wants.

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Learning Objective: 1.1

2. What are the key economic concepts that pertain to the individual?

Ans: The four key economic concepts that pertain to the individual are: (1) when individuals face scarce resources relative to their wants, they must incur tradeoffs; (2) the cost of a choice is what someone gives up for it or the opportunity cost; (3) decisions are usually made at the margin where a little more or a little less of something is chosen; and (4) choices are influenced by incentives.

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Learning Objective: 1.1

3. What are the key economic concepts that pertain to interactions among individuals?

Ans: The three key economic concepts that pertain to interactions among individuals are: (1) individuals can make themselves better off through specialization and trade; (2) markets usually do a good job of coordinating decisions among individuals, groups, and nations; and (3) government can sometimes improve the coordinating function of markets.

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Learning Objective: 1.1

4. What are the key economic concepts that pertain to the economy as a whole?

Ans: The three key economic concepts are: (1) the standard of living in a country depends on its production of goods and services; (2) printing of money in excess of the growth of output of goods and services will eventually lead to inflation; (3) society faces a short-run trade off between inflation and unemployment.

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Learning Objective: 1.1

5. What do economists mean when they say that “there is no free lunch”? Give another example to which this statement applies.

Ans: Anything of any value that is offered for “free” still has a cost. Economists refer to this sacrifice as an opportunity cost. In this case, the resources that were used to provide the free lunch could have been put to an alternative use. The opportunity cost is the next best alternative use for those resources. As another example, consider the case of a bank that offers you a “free” sports bag to open an account at the bank. The bag may be free to you as a new bank customer, but there is still a cost paid by the bank in the form of resources that could have been put to alternative uses.

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Learning Objective: 1.2

6. What are the three interrelated features of the economic perspective?

Ans: First, economics recognizes that there is a general condition of scarcity that forces individuals and society to make choices. Human and property resources are scarce, so choices must be made about how best to use those limited resources. Second, economics assumes that private or public decision-making is based on “rational self-interest.” People make rational decisions to achieve the maximum satisfaction of a goal. Consumers try to get the best value for their expenditures. Workers try to get the best job given their skills and abilities. Businesses try to maximize their profits. Elected representatives try to enact policies that best promote the national interest. Third, economics focuses on marginal analysis when making an economic decision. The marginal or “additional” costs from an economic choice are weighed against the additional benefit. If the marginal benefit outweighs the marginal costs, then a decision will be made to take the beneficial action. If the marginal cost is greater than the marginal benefit, then the action will not be taken.

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Learning Objective: 1.2

7. What is utility and what is its relevance to rational behaviour?

Ans: Utility is the satisfaction that individuals derive from consuming goods and services. The economic approach assumes that humans engage in rational behaviour, that individuals make decisions to maximize their utility.

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Learning Objective: 1.2

8. Use marginal analysis to explain why it is possible to “have too much of a good thing.” Use education as an example.

Ans: This explanation is based on an evaluation of the marginal costs and marginal benefit of providing a good or service. We may want more education for our society, but at some point the marginal cost of providing additional education is greater than the marginal benefit of the additional education. We would have to give up too many other things to obtain the additional education. For example, would it make sense to provide additional education resources for everyone so that they can earn a Ph.D. degree? The answer is no. In this case, the marginal cost of these additional educational resources (for example, lost labour time or inefficient use of people's abilities) would not be worth the marginal benefit to society of having everyone earn a Ph.D. degree.

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Learning Objective: 1.2

9. What does it mean to say that theories, principles, and models are “purposeful simplifications”?

Ans: Theories, principles, and models are “purposeful simplifications” means that when we study economies we find far too much complexity to make any significant gain in understanding. By assuming away unnecessary details we make it possible to gain a clearer understanding of basic economic relationships.

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Learning Objective: 1.3

10. The distinguished economist Kenneth Boulding stated: “Theories without facts may be barren, but facts without theories are meaningless.” Explain what he meant.

Ans: Economic theories are generalizations about the economic behaviour of individuals and institutions. As generalizations or principles, they are abstractions and may not offer specific information about a particular issue that can be obtained from facts. Economic theories are barren in the sense that they offer a framework for thinking about the economic issue without a lot of the details about it. Having a lot of facts about an economic issue, however, is not very meaningful. Facts need to be arranged and organized if they are to have meaning and give insight into the issue. Economic theory offers that framework for organizing the factual information.

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Learning Objective: 1.3

11. Explain the importance of the *ceteris paribus* or “other-things-equal” assumption.

Ans: The real-world is “messy” so economists try to analyze changes in the variables of interest by finding ways to hold “other things constant or equal.” The *ceteris paribus* assumption is made to indicate that these other variables are not changing or affecting the variables of interest. For example, the theory of consumer demand states that price and quantity demanded are inversely related; people will buy less at higher prices than they will at lower prices. But this theory assumes that other variables like tastes and income that might affect quantity demanded are not changing. Increasingly, experimental economists are attempting to test theories in laboratory environments in which *ceteris paribus* assumptions hold.

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Learning Objective: 1.3

12. “Bad theories are abstract and therefore unrealistic; good theories are fully realistic and fit all the facts.” Evaluate.

Ans: While some abstract theories are bad, that certainly does not have to be true. Most good theories are generalizations or predictions about human economic behaviour and will not be true in every situation, and thus will not fit all the facts all of the time. A good theory is based on observable behaviour and will generally explain or predict correctly.

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Learning Objective: 1.3

13. “Economic models are somewhat like different types of maps.” Evaluate.

Ans: Economic models are necessarily a simplification of the real world. The validity of a particular economic model should be based upon a comparison of the model’s predictions to observable fact. A world atlas is not the best map to use to find out how to get to Vancouver from Charlottetown, but it will tell you where South Africa is in relation to Luxembourg. If you wanted to get to Vancouver from Charlottetown, you’d need a road map of Canada. But a road map would not sufficiently describe the elevations if you were riding your bike and would not likely tell you how to find Main Street in Golden, B.C.. The map you use should be judged based not on its complete accuracy and detail, but on its ability to get you where you are going.

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Learning Objective: 1.3

14. Distinguish between microeconomics and macroeconomics.

Ans: Microeconomics deals with individual economic units such as industries, firms, households, and with individual markets, particular prices, and specific goods and services. Macroeconomics, on the other hand, deals with the economy as a whole, including such major aggregates as the household, business, and governmental sectors and with totals for the economy.

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Learning Objective: 1.4

15. Below are six statements. Indicate whether each one pertains to microeconomics (MIC) or macroeconomics (MAC).

(a) “The inflation rate in Canada hit its lowest level in the last twenty years.”

(b) “The profits of BCE rose 20 percent during the past quarter.”

(c) “A drought has occurred in the Prairies. The prices for barley are expected to rise sharply.”

(d) “The nation's economy grew at an annual rate of 3.7 percent in the final quarter of the year.”

(e) “The trade surplus in Canada was \$4 billion last month.”

(f) “General Motors plans to spend \$800 million on a new automobile plant.”

Ans: (a), (d), and (e) are macro; (b), (c), and (f) are micro.

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Learning Objective: 1.4

16. Give one example of a positive economic statement and one example of a normative economic statement.

Ans: A positive economic statement is any factual statement such as: “Last month there were 1.2 million workers unemployed.” A normative economic statement is one which contains an opinion such as: “Many people today are too lazy to look for work and that is why the unemployment figures are so high.”

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Learning Objective: 1.4

17. Below are six statements. Identify whether each is a positive or normative statement.

- (a) The minimum wage should be increased so low-income workers can earn a living wage.
 - (b) The unemployment rate is too high and should be reduced through government actions.
 - (c) The rate of inflation was about 2 percent last year, an all time low for the past decade.
 - (d) The government should take action to break up the monopoly power of Air Canada.
 - (e) Interest rates should be lower in Canada so that people can afford to build a home.
 - (f) The Federal government achieved a budget surplus for the first time in thirty years.
- Ans: (a), (b), (d) and (e) are normative; and (c) and (f) are positive.

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Learning Objective: 1.4

18. Identify whether each of the following is a positive or normative statement.

- (a) Should tuition fees increase, fewer students would obtain a post-secondary education.
 - (b) The Prime Minister announced that Canada is the best place in the world to live.
- Ans: Both statements are positive. Although statement (a) contains the word, “should”, it is simply a cause and effect statement. Another way of expressing the same idea is “If tuition fees are increased, fewer students would obtain a post-secondary education.” Statement (b) is also positive because it is concerned with facts. Although the statement is made up of a normative phrase (“best place in the world”), at its core is a factual statement regarding an announcement by the Prime Minister.

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Learning Objective: 1.4

19. “Economists are scientists and therefore should not become involved in making value judgments which policy formulation necessarily entails.” Do you agree?

Ans: It is important to distinguish between positive and normative economics. When conducting positive economic analysis, economists use objective, scientific methods to collect data and test hypotheses to arrive at economic theories and principles. However, there is a need to apply economic theories to real-world problems and this necessarily requires some value judgments or the use of normative economics. Even scientists who can experiment in laboratories have to make value judgments when they arrive at the point of applying their theories. For example, geneticists must make value judgments about the uses of genetic science.

Economists are the most knowledgeable people regarding their own theories, so they should be involved in the decisions about how to apply those theories. Of course, in a democratic society those judgments are often advisory and must be approved by elected representatives before they are enacted.

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Learning Objective: 1.4

20. “Economics cannot be scientific because it is based upon the value judgment that 'more (output) is better'.” Do you agree?

Ans: This statement can be subjected to positive economic analysis. If you can show that this assumption is valid, i.e., that it is correct that most people believe that “more is better,” then this is not a value judgment but a testable principle of economics. Where this assumption is questioned, it is a rather simple matter to test the hypothesis about whether “more is regarded as better.” In other words, if people behave as if more is better, then this assumption is not a result of value judgments by economists, but rather the result of observing that this is the way humans act.

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Learning Objective: 1.4

21. What was the approximate average incomes of Canadians and Liberians in 2007?

Ans: \$39,420 and \$150 (\$US at market exchange rates).

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Learning Objective: 1.5

22. What is meant by the “the individual's economic problem”?

Ans: An individual's income is limited whereas their wants are unlimited. This forces them to make choices to optimize their well-being.

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Learning Objective: 1.5

23. What variables are used to determine the individual's budget line?

Ans: Income and the prices of the two goods will determine the position of the budget line. Income divided by the price of a good will determine the point where the budget line intersects an axis.

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Learning Objective: 1.5

24. How do income changes affect the position of the budget line?

Ans: Increases in income causes a parallel shift outward of the budget line (without changing its slope) while decreases in income cause the budget line to shift inward.

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Learning Objective: 1.5

25. What do economists mean when they say that economic resources or factors of production are scarce or limited in supply?

Ans: They mean that resources are not so abundant that they may be used freely for everything everyone wants. There are not enough resources available to meet all of society's unlimited economic wants.

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Learning Objective: 1.5

26. What is meant by “society's economic problem”?

Ans: The economic problem stems from two related facts. Economic wants are unlimited because they cannot be completely satisfied with the existing limited supply of resources available for production. Resources are said to be scarce relative to these unlimited economic wants. For this reason, people must make choices and economize on resource use.

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Learning Objective: 1.5

27. List the four resource categories and give a brief description of each.

Ans: (a) Land: natural resources including land, forests, water and minerals.

(b) Capital: investment goods or those manufactured items used in production of other goods. Factories, tools, machinery, transportation facilities, and equipment are examples. Money is not a capital good.

(c) Labour: a broad term used to describe the physical and mental talents of men and women available to be used in producing goods and services.

(d) Entrepreneurial ability: a type of human resource, but unique from productive labour in that it refers to the person who is the driving force behind production decisions, innovation, and the one who is willing to take the risk of time, effort, reputation, and/or funds.

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Learning Objective: 1.5

28. What four basic functions does the entrepreneur perform for the economy?

Ans: First, the entrepreneur takes the initiative in combining resources to produce a product. In this way the entrepreneur is a catalyst for production in the economy. Second, the entrepreneur makes basic business policy decisions that set the course for the business enterprise. Third, the entrepreneur will introduce new or improved products to the market place or develop new forms of business organization. In this role, the entrepreneur serves as an innovator for the economy. Fourth, the entrepreneur bears the risk in terms of time, effort, and invested funds. A market economy has no guarantee of profits for the entrepreneurs, but it is the expectation of profit that gives incentives to the entrepreneur to bear risk.

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Learning Objective: 1.5

29. Explain and evaluate: "If resources were infinitely abundant in relation to the demand for them, the economic problem would dissolve in a sea of affluence."

Ans: If this were true, people would not have to make choices and there would be no need for economic systems to distribute the goods and services produced. In a world of abundance, people could simply help themselves to whatever they wanted.

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Learning Objective: 1.5

30. "The relative scarcity of resources makes the operation of any economy a matter of choosing between alternatives." Explain.

Ans: The fact that people cannot have as much as they want of everything requires them to make choices. There has to be some system for making these choices. For example, it may be "first come, first serve," or a system based on power with the strongest controlling the resources, or it may be a market-based system where the primary motivation is the profit incentive.

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Learning Objective: 1.5

31. “The two cornerstones of economics are the scarcity of resources and the multiplicity of wants. True economy consists of deriving maximum want satisfaction from available resources.” Explain.

Ans: The first statement refers to the basic economic problem: that society's wants are unlimited relative to the limited supply of productive resources. The second part of the statement refers to the concept of efficiency, both allocative and productive. Since resources are scarce, it is desirable to achieve the most output from those available. Otherwise we waste resources and will not satisfy as many wants as we could from the resources that we have available, which would mean not achieving productive efficiency. Allocative efficiency means the maximum satisfaction of wants with these resources.

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Learning Objective: 1.5-1.6

32. Explain the relationship between full employment of resources and full production.

Ans: Full employment of resources means that none of the available resources are idle. Full production goes one step further. It means that not only are resources fully employed, they are employed efficiently in the sense that they are making their most valued contributions to the national output. If the economy fails to realize full production, then economists say our resources are underemployed.

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Learning Objective: 1.6

33. The production possibilities table below shows the hypothetical relationship between the production of food and clothing in an economy.

- (a) What is the *marginal* opportunity cost of producing the second unit of clothing?
- (b) What is the *total* opportunity cost of producing two units of clothing?
- (c) What is the *marginal* opportunity cost of producing the third unit of clothing?
- (d) What is the *total* opportunity cost of producing three units of clothing?

<u>Combination</u>	<u>Food</u>	<u>Clothing</u>
A	0	4
B	7	3
C	13	2
D	18	1
E	22	0

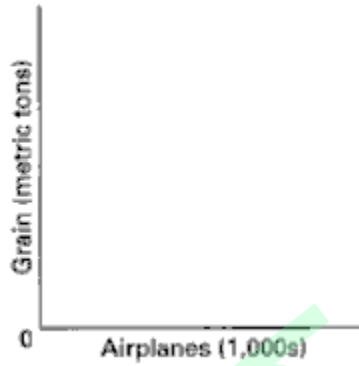
Ans: (a) 5 units of food ($18 - 13 = 5$); (b) 9 units of food ($22 - 13 = 9$); (c) 6 units of food ($13 - 7 = 6$); (d) 15 units of food ($22 - 7 = 15$).

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Learning Objective: 1.6

34. A production possibilities table for two products, grain and airplanes, is found below. Usual assumptions regarding production possibilities are implied. Grain is measured in tons and airplanes are measured in units of 1,000.

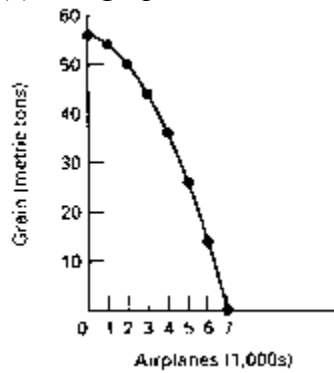
(a) Using the below graph construct a production possibilities curve from this information placing grain on the vertical axis and airplanes on the horizontal axis.



(b) What is the opportunity cost of producing the first unit of airplanes? The marginal opportunity cost of producing the fourth unit of airplanes?

Combination	Grain (tons)	Airplanes (1,000s)
A	0	7
B	14	6
C	26	5
D	36	4
E	44	3
F	50	2
G	54	1
H	56	0

Ans: (a) *See graph below.*



(b) Two units of grain (56–54) are sacrificed if one unit of planes is produced. When the fourth unit of planes is produced the marginal opportunity cost is eight units of grain (44–36).

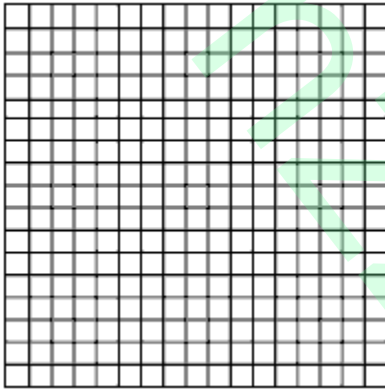
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Learning Objective: 1.6

35. A production possibilities table for two products, corn and paper, is found below. Usual assumptions regarding production possibilities are implied. Corn is measured in tons, and paper is measured per unit.

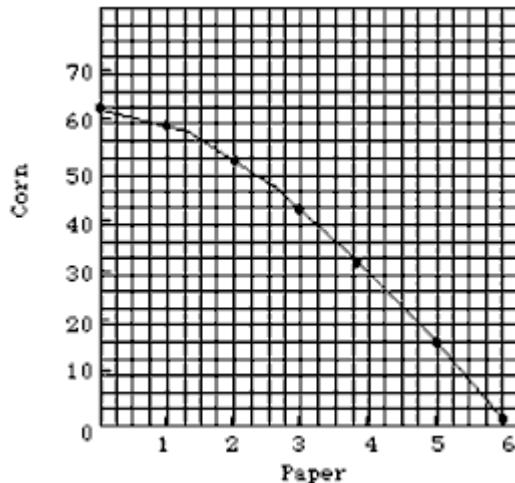
<u>Combination</u>	<u>Corn</u>	<u>Paper</u>
A	0	6
B	18	5
C	33	4
D	45	3
E	54	2
F	60	1
G	63	0

- (a) Using the following graph construct a production possibilities curve from this information placing corn on the vertical axis and paper on the horizontal axis.



- (b) What is the marginal opportunity cost of producing the first unit of paper? The marginal opportunity cost of producing the fourth unit of paper?

Ans: (a) See graph below.



- (b) Three units of corn (63-60) are sacrificed if 1 unit of paper is produced. When the fourth unit of paper is produced the opportunity cost is 12 units of corn (45-33).

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Learning Objective: 1.6

36. What is the economic rationale for the law of increasing costs?

Ans: Economic resources are not completely adaptable to alternative uses. In a two-product (A and B) economy, an increase in the production of product A will cause a reduction in the quantity of product B that can be produced because resources are being reallocated from the production of B to A. That reallocation of resources is not constant and becomes increasingly costly in terms of the lost production of B. As more resources shift from the production of B to A, these resources are less and less adaptable or suitable for the production of A. The production of more and more of A entails an increasing opportunity cost in the form of less and less production of B.

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Learning Objective: 1.6

37. Explain how increasing opportunity costs are reflected graphically in the production possibilities curve. How would the curve appear if opportunity costs were constant? (Answer verbally or illustrate your response with diagrams.)

Ans: The production possibilities curve illustrates the concept of increasing opportunity cost with its changing slope. This causes the curve to be concave toward the origin. It occurs because when society produces more and more of one product, it must give up increasing amounts of alternative products due to the fact that resources are specialized. If resources could be used equally efficiently to produce all things, opportunity costs would be constant and the production possibilities curve would be a straight line graph showing alternative production possibilities.

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Learning Objective: 1.6

38. An economy consists of five workers, who can produce either fish or fruit. The following table shows the daily output of each worker.

<u>Worker</u>	<u>Fish</u>	<u>Fruit</u>
A	10	20
B	6	10
C	8	6
D	8	4
E	10	10

(a) Suppose one worker catches fish and four workers pick fruit. For the economy to achieve productive efficiency, which of the five workers must fish?

(b) Does the economy achieve full employment and productive efficiency by producing 26 fish and 20 fruit?

Ans: (a) Productive efficiency requires that resources be used in the least costly way. To achieve productive efficiency, worker D must catch fish since this worker incurs the lowest opportunity cost. For each fish that worker D catches, .5 units of fruit are lost. The other workers face a higher opportunity cost for each fish caught. As the economy produces more fish, it must shift the workers from fruit. Initially, the opportunity cost of doing so is relatively low. However, the opportunity cost increases. This is why the production possibilities curve is concave to the origin. Although workers A and E can produce more fish than worker D, they also incur greater opportunity costs.

(b) Although the economy may be achieving full employment, it does not achieve productive efficiency. The economy can produce 26 fish and 20 fruit when fully employing workers A, C, and D in fishing and workers B and E in picking fruit. However, this allocation of resources does not achieve full production. Resources are underemployed. It is possible to produce more fish without losing any fruit by reallocating the five workers. If workers B, C, D, and E catch fish and worker A picks fruit, the economy's output is 32 fish and 20 fruit. Worker A incurs the lowest opportunity cost of all workers when picking fruit. Therefore, productive efficiency requires that worker A is allocated to picking fruit before any other worker.

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Learning Objective: 1.6

39. An economy consists of five workers, who can produce either fish or fruit. The following table shows the daily output of each worker.

<u>Worker</u>	<u>Fish</u>	<u>Fruit</u>
A	4	4
B	6	2
C	2	1
D	8	6
E	4	1

(a) Suppose one worker catches fish and four workers pick fruit. For the economy to achieve productive efficiency, which of the five workers must fish?

(b) Does the economy achieve full employment and productive efficiency by producing 12 fish and 4 fruit?

Ans: (a) Productive efficiency requires that resources be used in the least costly way. To achieve productive efficiency, worker E must catch fish since this worker incurs the lowest opportunity cost. For each fish that worker E catches, .25 units of fruit are lost. The other workers face a higher opportunity cost for each fish caught. As the economy produces more fish, it must shift the workers from fruit. Initially, the opportunity cost of doing so is relatively low. However, the opportunity cost increases. This is why the production possibilities curve is concave to the origin. Although workers B and D can produce more fish than worker E can, they also incur greater opportunity costs.

(b) Although the economy may be achieving full employment, it does not achieve productive efficiency. The economy can produce 12 fish and 4 fruit when fully employing workers A and D in fishing and workers B, C, and E in picking fruit. However, this allocation of resources does not achieve full production. Resources are underemployed. It is possible to produce more fish without losing any fruit by reallocating the five workers. If workers B, C, D, and E catch fish and workers A picks fruit, the economy's output is 20 fish and 4 fruit. Worker A incurs the lowest opportunity cost of all workers when picking fruit. Therefore, productive efficiency requires that worker A is allocated to picking fruit before any other worker.

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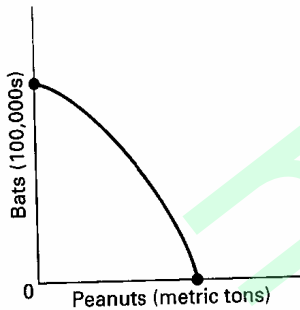
40. What changes must occur for the potential total output of the economy to grow?

Ans: For the economy to grow there must be either an expansion of resources or an improvement in technology so that more can be produced with the existing level of resources. Both of these changes would be most desirable for rapid growth.

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Learning Objective: 1.7

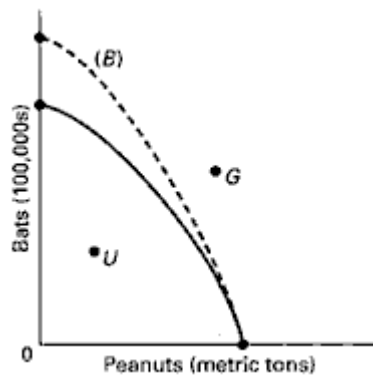
41. Look at the following production possibilities curve illustrating the possibilities in Sluggerville for producing bats and/or peanuts with the existing level of resources and technology.



(a) Show a point U that would indicate unemployed resources in Sluggerville.

(b) Draw a new curve B that illustrates the results of improved technology in the production of bats, but no change in the production efficiency of peanuts.

(c) Show a point G that would indicate a point that is currently unattainable in the production of peanuts and bats in Sluggerville.



Ans:

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Learning Objective: 1.7

42. Explain how each event affects production possibilities.

(a) The population becomes more educated over time as the number of high school dropouts falls and the number of college graduates rises.

(b) The unemployment rate declines from 8 to 6 percent of the labour force.

(c) Businesses and government are unable to solve a major computer problem, thus reducing economic efficiency and national output.

(d) Advances in telecommunications and new technology significantly contribute to economic growth over time.

(e) The Federal government decides to allocate more resources to national defence.

Ans: (a) Improvements in the basic education of the labour force typically contribute to an increase in productivity. The production possibilities curve should move outward.

(b) Unemployment means that there is inefficient use of existing resources. Production moves from a point inside the production possibilities curve toward the frontier.

(c) The most likely answer is that the production possibilities curve shifts inward. It would also be possible that there is movement from the frontier of the production possibilities curve to an interior point. Both answers indicate that there is less economic inefficiency in the economy.

(d) Advances in telecommunications and new technology significantly contribute to economic growth over time.

(e) There will be movement along the existing production possibilities curve toward more defence goods at one axis from all other goods at the other axis.

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Learning Objective: 1.7

43. Describe the adjustments in the production possibilities curves in each of the following situations for the Canadian economy.

- (a) the economy moves from full employment into a deep recession
- (b) the economy makes great strides in eliminating discrimination
- (c) the end of the Cold War leads to cuts in military spending
- (d) the government significantly increases spending for health and education

Ans: (a) The economy begins at a point on the curve but with recession there is unemployment and the economy now operates at a point in the area inside the curve, indicating that production is less than that which is possible because some resources are not being used.

(b) Eliminating discrimination would move the economy from a point inside its production possibilities curve toward a point on the curve.

(c) If the curve is illustrating the tradeoff between private spending and government spending (or between military and consumer goods), then this should mean a movement along the curve in the direction of more private or consumer production and less military production. Government spending in general could decrease, but if that were not the case, then the government might simply shift some funds from the military to other types of government spending and the point would not necessarily move at all on a curve depicting the tradeoff between government and private spending.

(d) Movement depends on where the money is coming from. If the money comes from increased taxes or borrowing, then there is a movement along the curve away from private spending and toward public spending. If the money comes from other government programs and the curve is illustrating government versus private spending, the amount of total government production would not necessarily change, so the point could remain at the same spot on the curve.

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44. Evaluate. Since the production possibilities curve can shift outward over time, it is possible for an economy to get more of a product without incurring an opportunity cost.

Ans: Outward shifts of the production possibilities curve occur if factor supplies increase or if technology advances. Both these changes, however, are not without cost. Increases or improvements in factor supplies involve tradeoffs. For example, a nation can increase its stock of capital by forgoing some goods for the present. Likewise, an increase in natural resources requires the use of resources for exploration and development that could have been used to produce goods for the present. Similarly, technological advancement is the result of employing resources with alternative uses in research and development.

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45. One application of the production possibilities concept has been to explain the difference in growth patterns of a nation with a high level of investment (Alta) and an equivalent nation with a low level of investment (Zorn). Use the concept to explain why Alta's economic growth would be greater than that of Zorn over time.

Ans: The application suggests the tradeoff illustrated by a production possibilities curve with consumption spending on one axis and investment spending on the other axis. In Alta the combination of consumption and investment spending is heavily weighted toward investment. In Zorn investment spending is a smaller percentage of domestic output. If investment were measured on the vertical axis and consumption on the horizontal axis, Alta's optimal selection would be much higher on its production possibilities curve than would be the selection in Zorn. As a result of this larger proportion of income spent on investment goods, Alta's capital resource base and its economy grow more rapidly, which means its production possibilities curve shifts outward at a more rapid pace over time.

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46. The production possibilities curve suggests that a nation cannot live beyond its means or production potential. Explain why international trade would cause this statement to be modified.

Ans: International trade allows for greater specialization and production. This activity has the effect of increasing the quantity and quality of resources, using resources more efficiently or improving output through the use of new production techniques. Thus, the gains from international specialization and trade are the equivalent of economic growth.

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Learning Objective: 1.7

47. List and give examples of the five pitfalls to economic thinking.

Ans: First, bias and preconceptions can cloud economic thinking. An example would be the belief that “the only reason people are unemployed is that they are too lazy to work.” Second, economic terminology in the popular press can be slanted or emotionally loaded. Examples of loaded or slanted terms are “corporate welfare,” “gouging the consumer,” and “exorbitant salaries.” Third, there is the problem of definition of terms. For example, the term “capital” may refer either to “capital goods” or “financial capital.” Fourth, you make a mistake when you assume that what is true for the individual or part of a group is also true for the group as a whole. For example, if an individual stands up to see better at a football game, the individual is better off, but if all of the fans stand up to see better, the group is not better off. Fifth, there are two causation fallacies. You might conclude that one event causes the other simply because one preceded the other (the after this, therefore because of this causation): “I washed my car, therefore it rained.” You might also confuse correlation with causation: “incomes rose and the crime rate fell, thus higher incomes reduce the crime rate.”

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Learning Objective: Last Word

48. Below are four statements. Each of them is an example of one of the pitfalls often encountered in the study of economics. Indicate following each statement the type of pitfall involved.

(a) “July is the month with the most ice cream sales and also the month with the most drownings. Therefore, the more ice cream people eat, the more likely they are to drown.”

(b) “Dry weather in the county where Farmer Brown lives decreased his income because his crop was so poor. Therefore, when there is dry weather in the nation as a whole all farm incomes will suffer.”

(c) “I have to live within my income. Therefore, governments should not be allowed to borrow money.”

(d) “National health insurance plans are socialistic.”

(e) “People arrive at a soccer pitch and then players come on the field. Therefore, crowds in stadiums cause soccer to be played.”

Ans: (a) Causation is confused with correlation.

(b) This is the fallacy of composition. What is bad for one farmer is not necessarily bad for all farmers if prices rise enough to offset the decline in crop yields overall. However, dry weather in only one county would not cause an increase in agricultural prices, so Farmer Brown would suffer if his were the only dry area.

(c) This illustrates two pitfalls. The fallacy of composition may be a factor behind this statement since governments are a collection of individuals, but the fallacy is that governments do not have limited life spans and additionally have the power to tax. This statement also illustrates biased thinking since it assumes that all borrowing is bad.

(d) This is an example of loaded terminology designed to influence one's view of national health insurance plans.

(e) This is the post hoc fallacy. The crowds arrived before the game so they could see the start of the game.

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Learning Objective: Last Word

49. What is the fallacy of composition? Give an economic and a non-economic example.

Ans: It is the incorrect reasoning that what is true for an individual (or part of a group) is necessarily true for the whole group. Or, what is true at the micro level of analysis may not be true at the macro level of analysis. Economic example: when an *individual* farmer produces a large crop, then the farmer should have an increased income because he or she has more output to sell. If, however, *all farmers* produce more output, then the increase in output may decrease prices and reduce farm income. Non-economic example: If a spectator at a packed basketball arena stands up, then he or she will likely see the game better. If, however, all spectators at the game stand up, then the group of spectators as a whole will not be able to see the game better.

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Learning Objective: Last Word

50. Explain what the post hoc fallacy is. Give an example.

Ans: It means “after this, therefore because of this.” It is the mistaken belief that when one event precedes another, the first event is the cause of the second. An example: I washed my car today; therefore it will rain tomorrow.

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Learning Objective: Last Word

51. Explain the difference between correlation and causation and give an example.

Ans: Correlation refers to a systematic and dependable association between two sets of data (two kinds of outcomes). Causation implies that there is a cause-effect relationship between two events. Correlation does not imply causation. Just because two events are related in a predictable manner does not necessarily mean that one causes the other. More must be known about the cause-effect relationship before conclusions about causation can be drawn.

For example, one could discover a positive correlation between ice-cream sales and the number of drownings. However, this does not mean that eating ice cream causes drowning, nor does it mean that more drownings cause people to buy ice cream.

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Learning Objective: Last Word

52. Suppose the following were facts relating years of education to average annual income of individuals. Can you conclude that years of education cause income to increase?

<u>Years of education</u>	<u>Income</u>
0–10	\$16,000
11–12	30,000
13–15	44,000
16–18	60,000
19–21	70,000
22 and over	105,000

Ans: These facts are given and they seem to suggest that average incomes rise as years of education increase. This result is a correlation, indicating that education and income are related in a systematic and dependable way. The data cannot prove causation because there may be other factors that explain the relationship. And the causation can run the other way: higher incomes lead to more education.

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Learning Objective: Last Word

53. Why do economists use graphs in their work?

Ans: Economists use graphs to illustrate the relationship between economic variables in a visual format which often is more efficient than explaining the relationship in words. By seeing the relationship in graphical format, the reader (viewer) is able to readily describe the relationship.

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Learning Objective: Appendix

54. In a two-dimensional graph showing the relationship between income and consumption in the economy, what is shown on the vertical axis and what is shown on the horizontal axis?

Ans: In the typical two-dimensional graph, the vertical axis measures the dependent variable, which in this case would be consumption. The horizontal axis measures the independent variable, which in this case would be income.

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Learning Objective: Appendix

55. Define what is meant by a positive or direct relationship between two variables and describe the line graph depicting such a relationship.

Ans: A positive or direct relationship between two variables describes a situation where the two variables change in the same direction. If the first variable increases, the second variable increases; if the first decreases, the second decreases. An example would be individual income and spending. Generally, high spending is associated with high incomes and lower spending is associated with lower incomes. The line graph of a direct, positive relationship is upward sloping from left to right.

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Learning Objective: Appendix

56. Define what is meant by an inverse relationship between two variables and describe the line graph depicting such a relationship.

Ans: An inverse relationship describes a situation where the two variables change in opposite directions. When the first variable increases, the second variable decreases and vice versa. An example would be product price and quantity demanded of the product. Other things being equal, the higher the product price, the less will be purchased. The line graph of an inverse relationship has a negative slope; that is, it is downward sloping from left to right.

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Learning Objective: Appendix

57. Differentiate between the independent and dependent variables in an economic relationship.

Ans: The dependent variable changes as a consequence of the change in the independent variable. By specifying one variable as the dependent variable, a causal relationship is implied with changes in the independent variable causing changes in the dependent variable. The dependent variable is the “effect” or outcome.

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Learning Objective: Appendix

58. Describe the slope of a direct and an inverse relationship.

Ans: The ratio of the vertical change (the rise or fall) to the horizontal change (the run) in moving between two points on the line is called the slope of the line. The slope of an upward sloping line is positive, reflecting a direct relationship between two variables; the slope of a downward sloping line is negative, reflecting an inverse relationship.

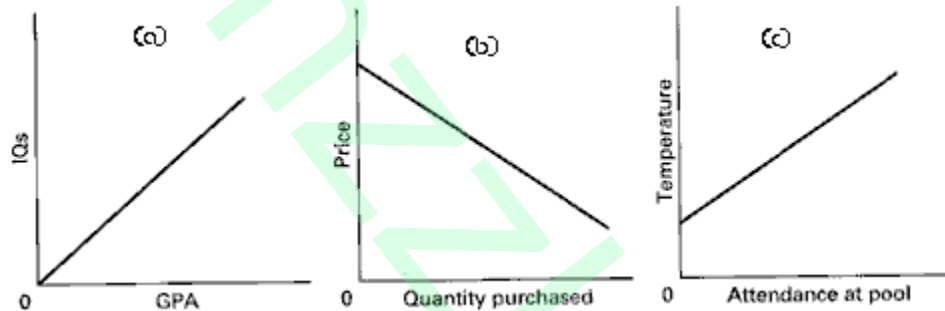
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Learning Objective: Appendix

59. Show graphically the relationships that you would expect to find between (a) student IQs and grade point averages (GPAs); (b) the price of a product and the amount consumers will purchase; (c) the temperature and the number of people at the swimming pool. Which of these are direct relationships and which are inverse? What considerations might change the expected relationships?

Ans: The direct relationships expected are (a) IQs and grade point averages, and (c) the temperature and the number of people at the pool.

These relationships could change if external conditions were changed to affect these relationships. For example, in (a) if high IQ students were forced to take the most difficult classes, the direct relationship might disappear; in (b) if high-priced products became very fashionable and were of far superior quality, people might actually buy more when prices rose; in (c) if the number of people in the pool was limited to a low number or if air pollution alerts accompanied high temperatures, the direct relationship between temperature and pool attendance might change.



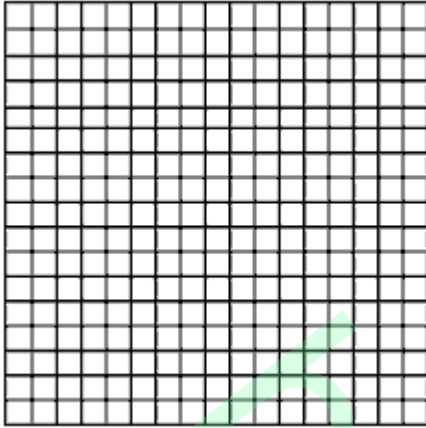
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*** ANDRIA – can you switch the labels on graphs (a) and (c)? GPA on vertical axis and IQs on horizontal axis in (a) and similarly for (c)? Usually economists follow the mathematical rule that the independent variable goes on the horizontal axis. It is only in a few cases (and there's historical reason) that we don't follow this rule.

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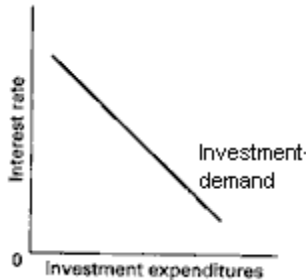
Learning Objective: Appendix

60. Show graphically on the below graph the expected relationship between investment spending and interest rates. Put investment expenditures on the horizontal axis and the rate of interest on the vertical axis; connect the points and label the curve “Investment demand.” Describe this relationship between the rate of interest and investment expenditures. Describe the slope of the investment curve.



Ans:

The relationship between the interest rate and investment expenditures is inverse. The slope of the investment curve is downsloping or negative.



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Learning Objective: Appendix

61. There are two sets of x, y points on a straight line in a two-variable graph with y on the vertical axis and x on the horizontal axis. What would be the linear equation for the line if one set of points was $(0, 12)$ and the other set was $(12, 36)$?

Ans: The linear equation is $y = 12 + 2x$.

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Learning Objective: Appendix

62. The value of the vertical intercept is \$100 and the slope is 0.8 in a linear equation for consumption (measured on the vertical axis) and disposable income (measured on the horizontal axis). If disposable income is \$1000, what is consumption? State the linear equation and show how you found the answer.

Ans: The linear equation is $\text{consumption} = \$100 + 0.8(\text{disposable income})$. When disposable income is \$1000, consumption is $\$900 + 0.8(\$1000)$.

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Learning Objective: Appendix

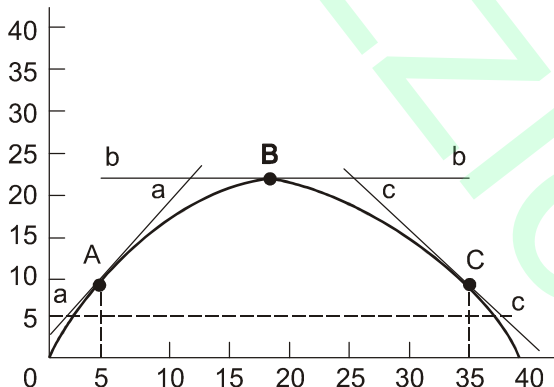
63. How do you determine the slope of a nonlinear curve? Will the slope be the same along the curve? Explain.

Ans: The slope of a curve at any point is determined by calculating the slope of a straight line tangent to the curve at that point. The slope will change as you move along the curve. The curve has a different slope at each point.

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Learning Objective: Appendix

64. Using the below graph give the slopes of the lines tangent to the curve at points A, B, and C.



Ans: To find the slope, choose two points on the tangent line and divide the vertical distance between the two points by the horizontal distance. The tangent line aa passes through (5, 10) and (0, 3). Therefore, the slope at point A is $7/5$ or 1.4. The slope at point B is zero. The tangent line cc passes through (35, 10) and (31, 15). Therefore, the slope at point C is $-5/4$ or -1.25.

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Learning Objective: Appendix